*Watershed Report* (Continued from page 3)

**Howe Creek Watershed**
The creek maintained generally good water quality in 2000-2001. Algal blooms were not found, turbidity was generally low, and low dissolved oxygen was not problematic. Fecal coliform bacteria were not sampled during 2000-2001.

**Smith Creek Watershed**
Smith Creek had moderate water quality problems including turbidity, elevated suspended sediments, and algal blooms. Fecal coliform bacteria counts exceeded the state standard for human contact waters at both sampling sites on a number of occasions. Low dissolved oxygen problems occurred 25% of the time.

**Whiskey Creek Watershed**
Whiskey Creek had relatively high nutrient loading. There were several incidents of low dissolved oxygen and high turbidity occurred periodically at one sampling site. Fecal coliform bacteria were not sampled in 2000-2001 in this creek.

**Upper and Lower Cape Fear Watersheds (Downtown area)**
Water quality at the sampling station behind the Wilmington Police Station had high nitrate concentrations, although they were lower than in previous years. Fecal coliform concentrations often exceeded the state standard for human contact at this station as well. Algal blooms and turbidity from Greenfield Lake were also sometimes transported to the Cape Fear River through this station.

**You may get copies of the Executive Summary from Storm Water Services or request the report in its entirety from the UNCW Center for Marine Science Research.*

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**STORM WATER WATCH**

# STORM WATER WATCH

## WATER QUALITY ISSUE

***Spring 2002***

*A Publication of the City of Wilmington's Storm Water Services*

**CITY-MAINTAINED STORM WATER FACILITIES**

| | |
|---|---|
| 13,000 | *CATCH BASINS & MANHOLES* |
| 250+ | *MILES OF PIPE* |
| 125+ | *MILES OF OPEN DRAINAGE (DITCHES, CREEKS, AND CHANNELS)* |
| 11+ | *MILES OF CULVERTS UNDER ROADS* |
| 145+ | *ACRES OF RETENTION PONDS (RANDALL POND & SILVER STREAM)* |

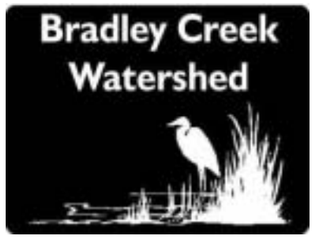
*GREENFIELD LAKE*

*LOVE GROVE TIDEGATES*

**INSIDE THIS ISSUE**



## WATERSHEDS IMPACT WILMINGTON WATER QUALITY




Driving around Wilmington, you may have noticed several blue signs indicating local watersheds. Simply put, a watershed is an area of land that catches rain and then drains into a common body of water such as a stream, lake, or river. This rainwater, called *storm water runoff*, flows into our waterbodies - *untreated*.

In Wilmington, water quality in our creeks, lakes, river, and waterway is determined by the quality and quantity of storm water runoff flowing from our watersheds. We all live, work, and play in a watershed. Homes, farms, shopping malls, businesses, and parks are all part of a watershed. Smaller watersheds are nearly always part of a larger watershed.

Within Wilmington city limits, there are 10 watersheds or portions there of. Wilmington is unique because its watersheds are situated between the Cape Fear River and the Intracoastal Waterway. Therefore, depending on which watershed you live in, storm water runoff from your property may eventually drain into the Cape Fear River or the Intracoastal Waterway.

**Water Quality Impact**
Everything we do in a watershed impacts the condition of water in our local water bodies. Pollution in storm water runoff has a significant impact on water quality and the health of our watersheds. Leaving pet waste on the ground, pouring paint or motor oil into storm drains, washing cars on the pavement, blowing leaves and yard waste into the street, throwing cigarette butts out the car window, or applying too much fertilizer to your lawn - all have negative impacts on the health of our watersheds and water quality.

*A town watershed. Runoff from yards, rooftops, parking lots, driveways, and streets flows to nearby waterbodies - **untreated.***

A healthy watershed is important to sustain a healthy environment and a vibrant economy. We depend on our local watersheds for countless purposes including business, recreation, and irrigation. Wildlife also depends on healthy watersheds for food, shelter, and ultimately, for survival.

Fortunately, there are numerous actions individuals can take to protect water quality. Understanding your own watershed is the first step in protecting our local waterways and other natural resources. To receive a free Wilmington Watershed Map and discover your watershed, contact Storm Water Services, 343-4777.


*Osprey Landing provides fully-equipped pet stations to help residents clean up after their pets.*

## OSPREY LANDING TACKLES PET WASTE

Osprey Landing, a multi-family apartment complex in the Greenfield Lake Watershed, is tackling the issue of pet waste and water quality in their own community. Located at 800 Walden Drive in the Greenfield Lake watershed, Osprey Landing has a strict policy regarding pets and cleaning up after them. Management realizes that pet waste left on the ground is carried by storm water runoff into Greenfield Lake, which in turn, creates water quality problems in the Lake.

According to Osprey Landing manager, Christina Rexroad, the community allows residents to keep pets including dogs, cat, birds, rabbits, and snakes. In particular, dogs of any size and breed are welcome. Dog owners must pay Pet Fees and sign a Pet Contract upon moving in. Owners are advised they must follow New Hanover County pet ordinances which include cleaning up pet waste and keeping dogs leashed and supervised.

Osprey Landing has made it easy for residents to follow their pet policy by providing 4 pet stations located throughout the apartment community. Each pet station includes bags for cleaning up pet waste and a garbage can to dispose of the waste.

The apartment community depends on its residents to report violations of the pet waste policy. It is estimated that about 80% of pet owners in the community clean up after their pets. Pet owners who are caught violating the pet waste policy face the following consequences: *1st Violation-pet owner receives a written warning; 2nd Violation-pet owner receives a written warning and a $25 fine; 3rd Violation-pet owner is asked to get rid of pet or their lease with Osprey Landing will be terminated.*

Rexroad states, *"We are very fortunate to be in a location where our residents can enjoy Greenfield Lake and all of its amenities. However, anyone coming to lake can see that we are in need of immediate efforts to restore the lake to its full potential. Hopefully Osprey Landing and its residents can do their part so that Wilmington residents can enjoy the Lake for years to come."*

## *Keep It Clean!*

### STORM DRAIN AWARENESS CAMPAIGN

You may notice a new addition to storm drains in your neighborhood! Cape Fear River Watch, Inc. and the City of Wilmington's Storm Water Services have implemented a Storm Drain Awareness Campaign, called *"Keep It Clean!"* Markers have been placed adjacent to storm drains with a message reminding citizens to keep storm drains clean to protect water quality.

**What is Storm Water?**

When it rains, water flows over pavement and other hard surfaces and picks up pollutants (such as pet waste, fertilizer, litter and lawn clippings) on the way to the storm drain. This water, *called storm water runoff*, enters storm drains and flows directly into our waterways—*untreated!*



Our daily activities are the main source of storm water pollution. As a result, the water resources that are so important to the Wilmington community have suffered from fish kills, closed shellfishing grounds, and degraded water quality of our recreational resources.

**Be Part of the Solution to Pollution**

Make a difference in Wilmington and volunteer to mark a storm drain. For information on how to get involved, contact Cape Fear River Watch, 762-5606 or Storm Water Services, 343-4777.



## 2000-2001 Summary of Wilmington Watersheds Project Report

*Dr. Michael Mallin, lead scientist for the Wilmington Watersheds Project and the Tidal Creeks Project, recently provided Storm Water Services with an Executive Summary of 2000-2001 water quality monitoring results for Wilmington watersheds. The following is taken from that document.*

**Barnard's Creek Watershed**

There was a general fecal coliform bacterial pollution problem at all stations sampled throughout the Barnard's Creek watershed. Lower Barnard's Creek at River Road had occasional poor water quality as judged by turbidity and fecal coliform counts, although dissolved oxygen at this station showed improvement over last year. Outflowing water from a wet detention pond on the Echo Farms Golf Course had higher levels of phosphates and pH than incoming water. Other nutrients were also somewhat higher in the stream exiting the course. However, these nutrient concentrations were low in comparison to other area golf courses sampled, possibly because of the nutrient uptake occurring in the natural wetland through which the outfall stream passes before leaving the course.

**Bradley Creek Watershed**

Turbidity was not problematic during 2000-2001, except occasionally in the upper south branch of the creek. Low dissolved oxygen was an occasional problem in brackish waters of the creek during late spring and summer. Elevated nitrogen and phosphorous levels enter the creek in the north and south branches, and two algal blooms occurred in the south branch during the year. Fecal coliform bacteria were sampled only at the station at College Acres, which proved to be contaminated on 83% of the occasions sampled.

**Burnt Mill Creek Watershed**

Fecal coliform bacteria and low dissolved oxygen were the primary problems in Burnt Mill Creek. A sampling station at Princess Place had substandard dissolved oxygen and poor microbiological water quality, exceeding the standard for human contact in 7 of 11 samples. There were also two algal blooms. The effectiveness of Anne McCrary wet detention pond on Randall Parkway as a pollution control device decreased from last year with a reduction in conductivity and an increase in nitrate loading to the creek. Water quality worsened from where it exited the pond to the downstream Princess Place sampling station.

**Greenfield Lake Watershed**

All three tributaries of Greenfield Lake (near Lake Branch Drive, Jumping Run Branch, and Lakeshore Commons Apartments) suffered from low dissolved oxygen, high fecal coliform counts, and algal blooms occurred several times in the lake. Nutrient loading was also a problem in the stream near Lakeshore Commons and in the south end of the lake. According to a UNCW study, waterfowl do not appear to be the major contributors of fecal coliform bacteria to the lake; possibly dogs and cats around the lake and in the areas drained by tributaries are the major sources of this human health pollutant. The Silver Stream retention pond did a very good job of reducing pollutant loads to the lake.

**Hewletts Creek Watershed**

This creek received high nutrient loading in its three upper branches, with several minor algal blooms occurring in the south branch near Pine Grove Road. The middle branch had high nutrient concentrations largely derived from two golf courses, while low dissolved oxygen occurred periodically in the north, south, and middle creek sites. All three tributary stations and the upper main section of the creek exceeded the safety standard for human contact water on several occasions. The two sampling stations closest to the ICW had generally clean water microbiologically.

### Water Quality Terms

**Algal Bloom**- When excessive nutrients cause an explosion of plant life that in turn deletes oxygen in the water needed by fish and other aquatic life for survival. *Sources: lawn fertilizer, pet waste.*

**Dissolved Oxygen (DO)** The amount of oxygen in the water. Aquatic organisms require adequate levels of DO to survive.

**Fecal Coliform Bacteria** A type of bacteria present in the feces of warm-blooded animals. *Sources: pet, animal & human waste.*

**Heavy Metals** - Elements and compounds that settle from the atmosphere and are carried into waters that, in concentration, can harm living organisms. *Sources: vehicle brake dust.*

**Pathogens** - Microorganisms that can cause disease.

**Sediment** - Solid particles that wash from land into water bodies as a result of human or natural activities. *Sources: construction sites, eroding stream banks.*

**Turbidity** - A measure of water clarity (muddiness).

**Nutrients** - Nitrogen and phosphorous are the primary nutrients that cause weed & algae growth in water. *Sources: fertilizer, pet waste, car wash soap & wastewater overflows.*